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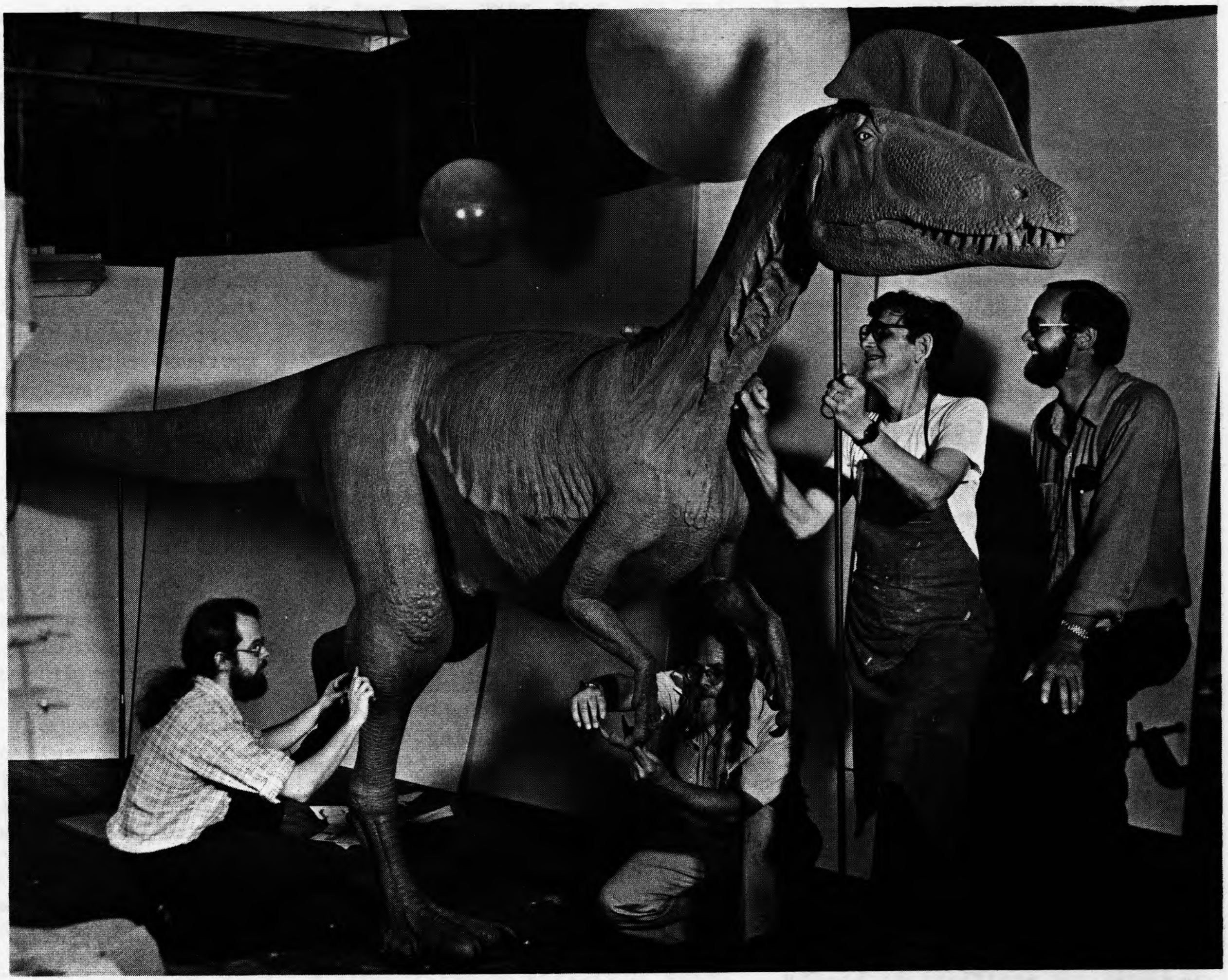

A glimpse of Connecticut 180 million years ago: 'A multi-lane highway for dinosaurs'

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Cover Photo: Dilophosaurus -- Richard Rush Studio, Inc., Chicago

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Wildlife photographer's new book offers a wealth of information

By Audrey Handelman, Environmental Intern

How much does a full-sized grizzly bear weigh? What is the life span of a mink in the wild? How do badgers get around? What do mountain lions like to eat?

The answers to these questions, and to many more, can be found in the new book by Leonard Lee Rue III, "Furbearing Animals of North America."

"The furbearing animals, for the most part, are not as well known by the general public as are the game animals," Rue writes in his preface. "The furbearers are not seen as often as the game animals because most of them are nocturnal and many are true wilderness creatures."

Rue's book offers an opportunity to become acquainted with these animals; the author dispels many common myths such as the belief that raccoons cannot swallow their food without washing it and that oppossums sleep hanging by their tails.

In addition to exploding common myths, Rue's book is an encyclopedia of facts about 27 North American furbearers. Rue introduces and describes each species and goes on to write extensively about its distribution, means of locomotion and communication, and food, behavior, and breeding habits. He supplements his discussion with personal observations and anecdotes gathered from his life-long experience as a wildlife photographer and naturalist.

For example, Rue writes: "The beaver's scent post or pad is another means of communication. I have found that solitary beavers make and use these scent posts much more frequently than do beavers in an established colony. Because of this, I feel that the scent posts are used more for advertising the presence of an unmated beaver than as a declaration of territory by an established colony."

Perhaps more than the relaxed, engaging writing style, it is the numerous black-and-white photographs which make the book a pleasure to read and a valuable resource for any naturalist or outdoorsman. Rue, the author of 14 books and North America's most-published wildlife photographer, does more than capture these animals in their native habitats. He portrays artistically the helplessness of a two-month-old bear cub, the dignity of a lone timber wolf, the industry and ingenuity of the beaver.

It is the author's hope that his book will introduce readers to these animals if they don't already know them and expand their knowledge if they do, making the animals "no longer strangers . . . only friends you haven't met."

Leonard Lee Rue III's photographs appear frequently in the "Citizen's Bulletin." "Furbearing Animals of North America" retails for $19.95, and personally autographed copies may be obtained for $21.45 by writing to the author at:

Leonard Lee Rue Enterprises
R.D. 3, Box 31
Blairstown, New Jersey 07285 ■

Cover: Dinosaur State Park's geologist, Richard Krueger, at right, checked clay model of the Dilophosaurus dinosaur during its construction at the Richard Rush Studio in Chicago. With him, from left, consultants Greg Paul of Johns Hopkins University and Dr. Don Baird of Princeton and sculptor Rodger Walshlager.

* * *

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Bored with your pet rock? Cast your own dinosaur footprints!

By John Waters

Today, elementary school kids chatter knowingly and accurately about dinosaurs, those king-sized reptiles that appeared on earth 225 million years ago and unaccountably disappeared from it 155 million years later. Yet less than 100 years ago, college students, college professors, even college presidents didn't suspect that there were such things as dinosaurs. For example:

Big Bird

One day in 1800, a Williams College student named Pliny Moody was plowing his father's field in South Hadley, Massachusetts, for want of anything better to do. (Mount Holyoke was 37 years in the future.) His plow turned up a large slab impressed with what looked like the footprint of a very large bird.

Being a pious young man, Pliny concluded that the footprint had been made by none other than the raven that Noah had released to hunt for dry land. Presumably, the raven preferred South Hadley to another tour of sea duty because Genesis suggests that it jumped ship and never returned to the Ark. Pliny was also a thrifty Yankee and used the miraculous slab as a stepping stone at his front door.

Williams, 0; Amherst, 0

Thirty-five years later, what looked like large turkey tracks were noticed in some sandstone sidewalk slabs in Greenfield, Massachusetts. The man who noticed them showed them to the man who owned the property, who showed them to the local stonecutter, who showed them to the village doctor, who wrote about them to the president of Amherst College who doubled as State Geologist of Massachusetts and who also mistook them for the tracks of huge ground birds and wrote learned papers about them.

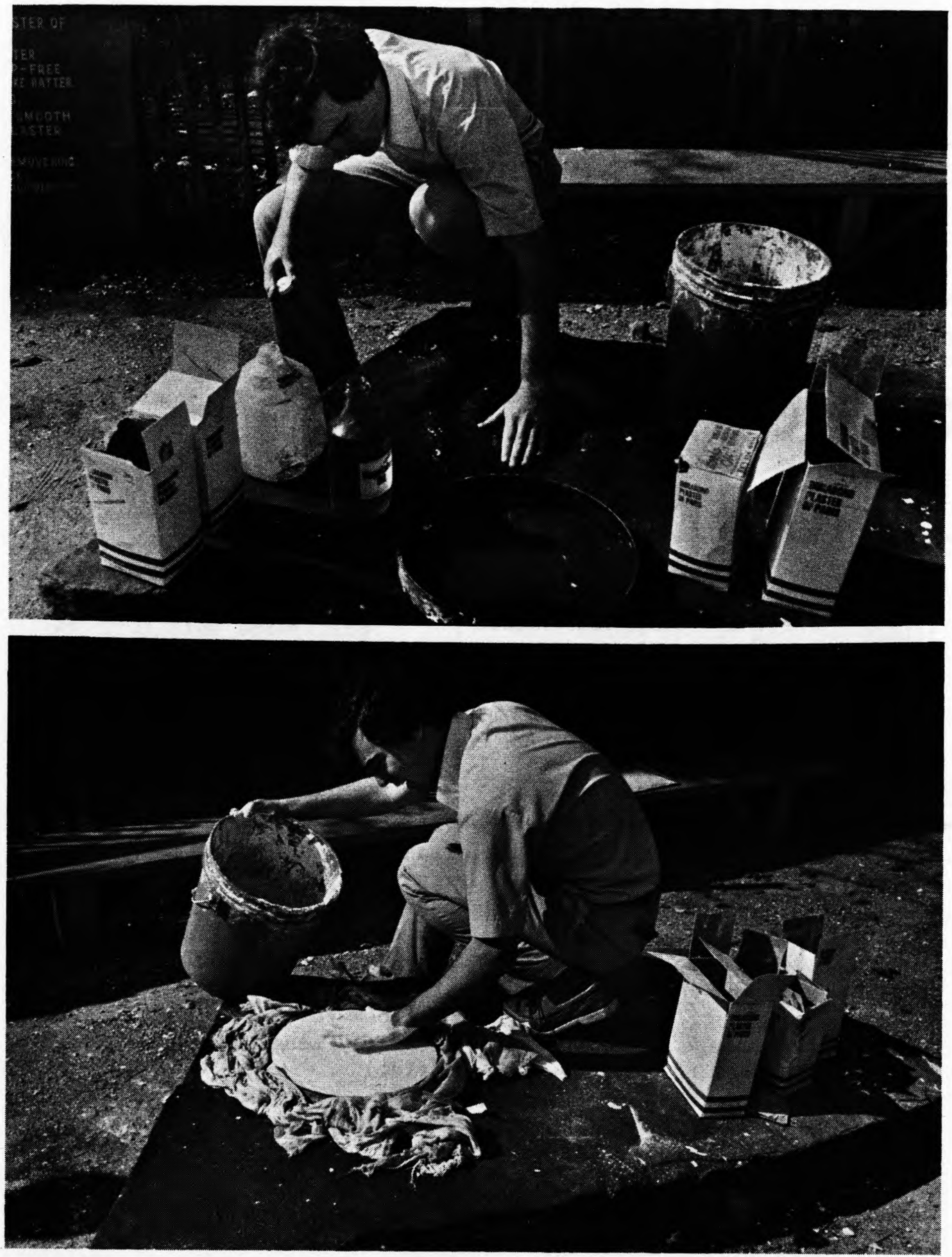
In 1857, blasting in Springfield revealed a fossil that most experts who saw it said was the skeleton of a large bird. Disagreeing with the others, a Professor Jeffries Wyman claimed that the bones were reptilian, and he noticed that they were hollow. (He didn't know it then, but lightweight, hollow bones were a distinguishing feature of early dinosaurs.)

Yale's first mascot

It took Professor O.C. Marsh, a famous Yale paleontologist, to conclude in 1885 that birds had nothing to do with the many fossilized bones and footprints that had turned up in the Connecticut River Valley since Pliny Moody's day. He asserted that the finds were giant reptiles and re-named an especially important fossil of bones "Anchisaurus" --the suffix "saurus" means "lizard," which is a form of reptile. (Another dinosaur acquired the name "Yaleosaurus," making it the first Ivy League dinosaur in the world.)

Footprints on the rocks of time

Thanks to Professors Wyman and Marsh, it became evident that what is now the Connecticut River Valley had been -- 180 million years ago -- a multilane highway for dinosaurs whose footprints have turned up in many localities. The Connecticut dinosaurs were smallish prototypes of the monstrous models that evolved from them millions of years later in the Triassic geological period. Four of the types of footprints that they made in mud that later turned to sandstone are shown in Fig. 1. The prints range in size from one to sixteen inches. They are on display at Dinosaur State Park in Rocky Hill, where more than 2,000 authenticated footprints have been uncovered 12 feet below the surface since the site was discovered by accident in 1966.



Dinosaur State Park's David Brown greases a track in preparation for making a cast and pats the plaster to remove bubbles.

Within a few days of the discovery, famous paleontologists were on their knees taking measurements, counting tracks, making plaster casts, and deciding that nowhere else in the world was there a dinosaur site with so many tracks on a single plane. Meanwhile, the State acted with astonishing speed to protect the find from souvenir hunters, who turned out in droves to dig up and steal slabs bearing footprints.

At first, an inflated fabric dome sheltered part of the excavation. A few years ago, a permanent geodesic dome was built to provide cover for 3,800 square feet of dinosaur trackways, with about 450 tracks visible to visitors. There is also a life-sized model of a Coelophysis dinosaur, one of the smaller types, as well as a life-sized model of a Dilophosaurus dinosaur, 22 feet long.

Close to a million people have visited the park. Guides are on hand to answer questions. There is a Triassic Garden in which you see, as living plants, descendants of the vegetation at the time of the dinosaurs. There is also a well-labelled nature trail showing the plant and animal life of a swamp forest.

Most of the people in the thousands of groups that have taken conducted tours of Rocky Hill State Park are third- to seventh-graders, and the novelty of making plaster casts of the giant footprints has made that activity one of the major attractions of the park.

Everybody loves a footprint

In 1978, the park found itself with a surplus of footprints on stones discarded during a project to uncover better prints. Geologist Richard Krueger announced that schools, towns, or other groups were welcome to them if they would haul them away. Then ensued the Great Dinosaur Rush of 1978. As described in an amusing article by Tony Cronin of the "Hartford Courant," "They came to Dinosaur Park, strong-armed and determined. They lifted, tugged, and cursed as they used elbow grease and occasionally engine grease to lift the heavy slabs imprinted with the tracks of carnivores onto trunks, vans, and cars." The enthusiasm of some of the pick-up crews flagged considerably when they discovered that the average slab weighed 4,000 pounds.

Amaze your friends! Pronounce dinosaur names with paleontological precision!

Coelophysis
(see-loaf-EYE-sis)

Stegomosuchus
(steg-oh-mo-SOOK-us)

Dilophosaurus
(die-lo-fo-SOR-us)

Easy to cast

Because school kids want a dinosaur track for Show & Tell, or their parents want to be the first on their block to own one, Dinosaur State Park provides a place to make plaster of Paris casts and the simple equipment needed. It is necessary to bring your own plaster (10 pounds per track) and also a small amount of cooking oil or other oil or grease.

The Friends of Dinosaur State Park is a volunteer organization of citizens so interested in the park that they have raised thousands of dollars to help the State purchase the life-sized model of the Dilophosaurus dinosaur. One of their projects is making casts of dinosaur prints which they give to people who make contributions.

The instructions for making a cast of a stone bearing a dinosaur footprint are easy:

1. To keep the plaster of Paris from sticking to the rock, spread a little cooking oil or grease over every part of it that plaster will touch.

2. Also grease the round steel form the park lets you use for pouring the plaster. Then place the form on the slab so that the footprint will be in the center of your cast. Wrap cloths around the bottom of the form to prevent leakage.

3. Put 2-1/2 quarts of water in a pail. Then sprinkle in most of the plaster, stirring with your hand to mix it well, especially around the edges at the bottom. Don't leave any large unmixed lumps. Work fast because setting starts in a few minutes.

4. Slowly add a pint of water to get a thick, smooth consistency. The more you stir, the thicker the mixture.

5. Pour the mixture into the form and fill it to the brim. Place your palms on the surface of the plaster and gently move them up and down to get rid of air bubbles. Then smooth the top with a stick.

6. After 15 minutes, tap the center of the exposed plaster. If it sounds hollow, it has become hard enough to remove. Spread the form a bit and lift it off the plaster. Trim rough bottom edges with a knife. Lift the cast to remove it from the rock.

7. Admire your handiwork. . .and don't drop it!

A seven-ton gift

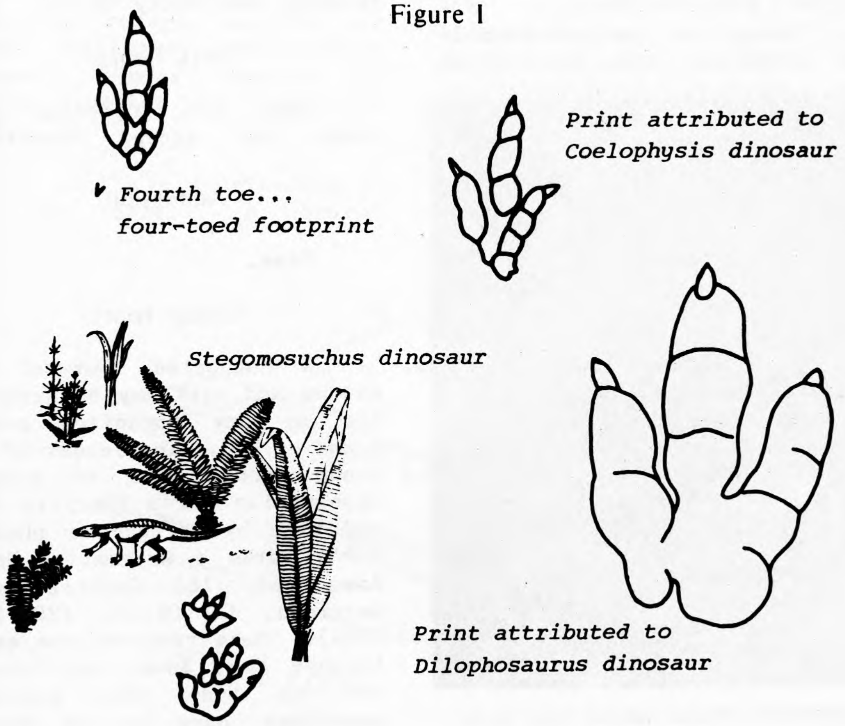
Last summer, a New Jersey business executive driving through Connecticut happened to visit Dinosaur State Park. He was so impressed with the life-sized models, the exhibits, the lectures, and especially the fun that people were having making plaster casts of dinosaur footprints that his firm donated 15,000 pounds of plaster of Paris to the Friends of Dinosaur State Park. The gift was made in the name of William Zinsser Company of Somerset, New Jersey.

Park Director Richard Krueger says this donation will be made into casts of footprints by the Friends, who will use them, as in the past, as gifts that they present to people who make donations for the park.

Dinosaur stew recipe

In 1977, the Friends of Dinosaur State Park staged a tremendous promotion to encourage school children at all levels to do things that would

Figure 1

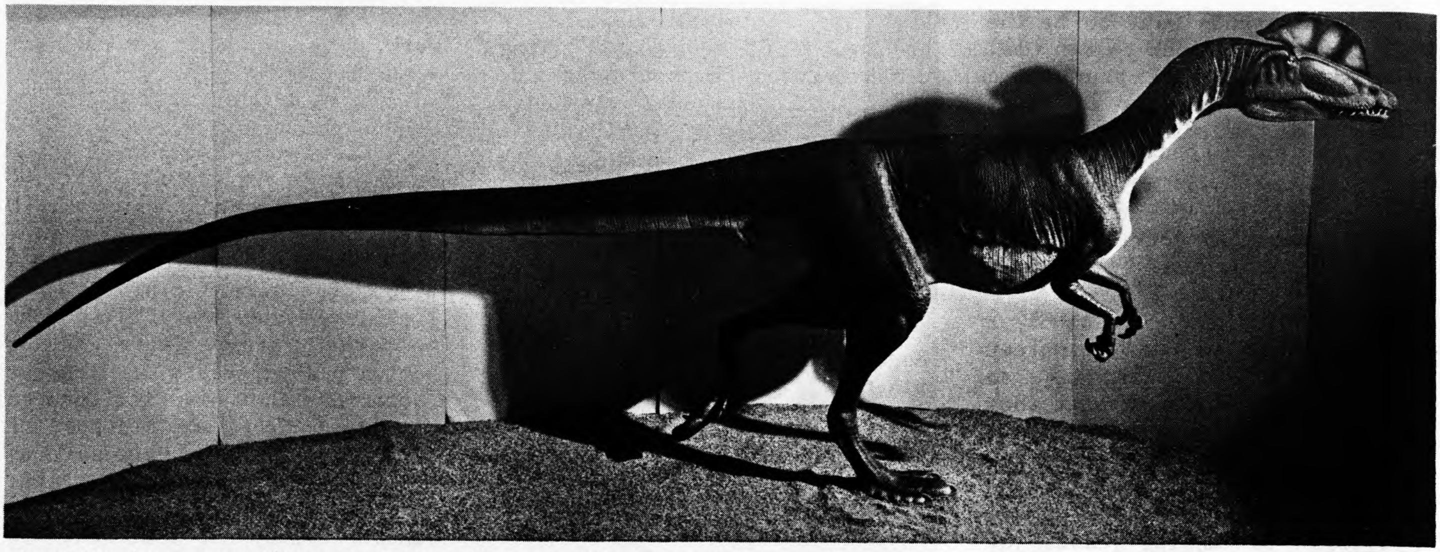

Fourth toe...
four-toed footprint
Print attributed to Coelophysis dinosaur
Stegomosuchus dinosaur
Print attributed to Dilophosaurus dinosaur

The four kinds of dinosaur footprints in the park are shown here in their relative lengths. The small Stegomosuchus dinosaur probably left the one-inch front and two-inch rear prints.

The prints most common in the park are attributed to the huge Dilophosaurus dinosaur which developed millions of years later. Its prints are 10 to 14 inches long.

Prints thought to have been made by the intermediate sized, three-toed Coelophysis dinosaur are six inches long. Somewhat similar, but with a fourth toe, is the four-inch print.

The types of vegetation probably growing at the times of the two smaller dinosaurs are also shown in the drawings.


Richard Rush Studio

New Dilophosaurus dinosaur is in place at Dinosaur State Park.

produce money to help keep the park operating. This produced a flurry of bake sales, handicraft sales, door-to-door solicitations, and also quite a bit of money for the park. Most unusual of its results was a "Recipe for Dinosaur Stew," created by some unsung Julia. Here it is, if you want to try it on your dog:

1 dinosaur (large).
Brown gravy
2 rabbits (optional)
Salt and pepper to taste

Cut dinosaur into bite-sized pieces. This should take about two months. Add enough brown gravy to cover. Cook over kerosene fire for about two weeks at 465 degrees or until tender. This will serve 3,800 people. If any more are expected, two rabbits may be added. Do this only if necessary, as most people do not care for hare in their stew.

Eat in good health!

How to get there

The park is on the south side of Rocky Hill's West Street, which runs westward from Main Street (Rt. 99) to Cromwell Street. Near its west end is US-91's Exit No. 23.

To get to the park from I-91 northbound, take Exit 23 to West Street and turn right. Go about a half mile until you see the park on your right.

To get to the park from I-91 southbound, take Exit 23 to West St. Turn left onto the overpass. Go straight ahead about a half mile until you see the park on your right.

If you are coming from east of the Connecticut River, between April 1 and November 30, it might be fun to cross the river on the only ferry that has been in continuous operation since 1655, between South Glastonbury and Rocky Hill.

Park hours

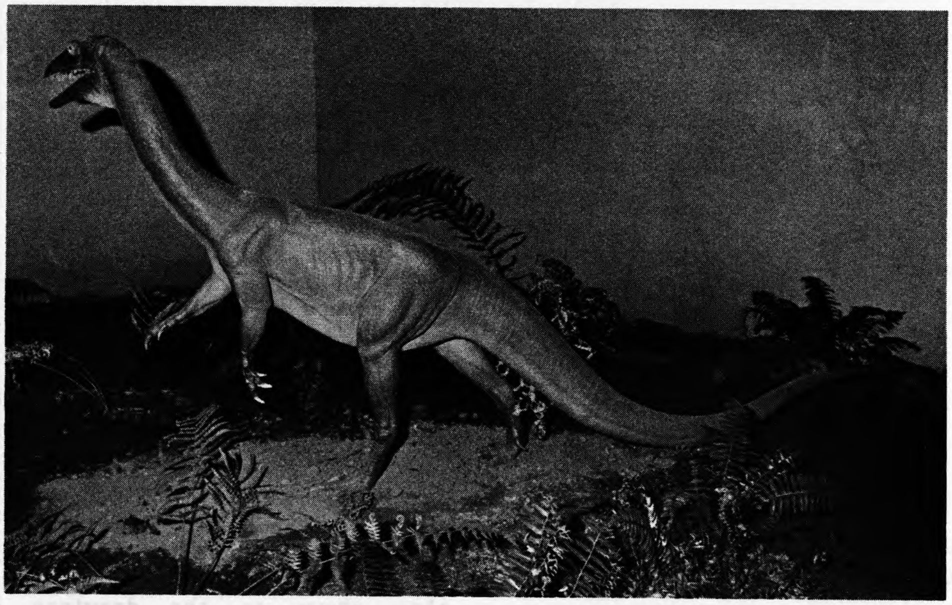
Nine a.m. to four p.m. every day except Christmas.

Admission

Free.

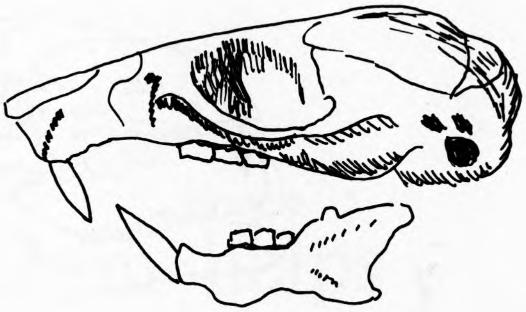
Group tours

A conducted tour of the museum and park may be arranged for by any organized group, young or old. The leader of the group should make an advance reservation for a specific date and time by writing or phoning DEP's Parks & Recreation Unit, Room 263, 165 Capitol Ave., Hartford, CT 06115; (203-566-2304). Make reservations early because May, June, and October are so busy that requests sometimes have to be turned down. ■


Dinosaur Park's model of Coelophysis dinosaur stands about the size of a large dog.

Nature Notes

by Penni Sharp



Rodent

Bones . . . nothing dry about them!

Many people who enjoy the outdoors spend time looking for wildflowers, ferns, birds, or other of nature's obvious attractions. Probably very few of us enter woods or fields with the idea of searching for bones, yet these can be among the most exciting discoveries. A bone alerts us to the presence of animals and may reveal much more to the observer who wishes to play the role of detective.

Depending upon the number and the condition of the bones found, it may be possible to determine the kind of animal, its cause of death, and its approximate age. Identification of animals from their skeletal remains can be quite complex. However, if one is fortunate enough to find an intact skull the identification process becomes similar to putting together the pieces of a puzzle.

A skull is fascinating in its own right. A typical mammalian skull contains 34 different bones which are separate at birth. As the animal grows, these bones gradually fuse together. Close inspection will reveal the suture lines where the bones have joined.

Teeth provide some important clues to the species of animal. The dental formula, that is the number and arrangement of teeth, can often provide the diagnostic tools necessary for a positive identification. Therefore, if one finds only a jawbone it may still be possible to determine to what species of animal it once belonged.

Many of the creatures of Connecticut's woods and fields are elusive, shy, and/or nocturnal; thus we may never see them. Their presence is indicated mainly by signs, and important among such signs are bones.

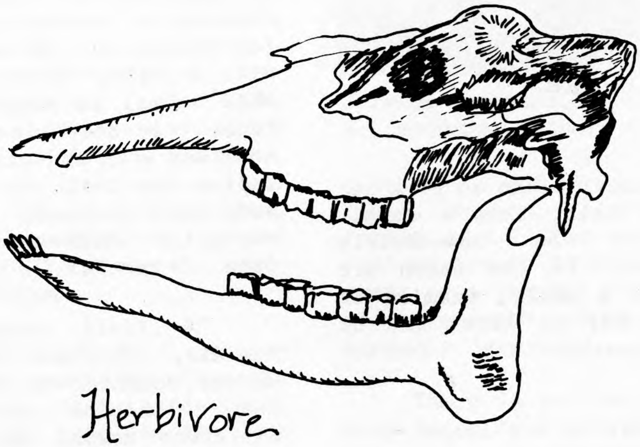
Bones don't remain long in the wild. Rodents gnaw on them, and beetles consume them. One can therefore assume, if bones are found, that the animal to whom they belonged has been dead for a relatively short time.

Among mammals' skulls and jawbones, three main types can be differentiated, based upon eating habits: herbivore, carnivore, and rodent.

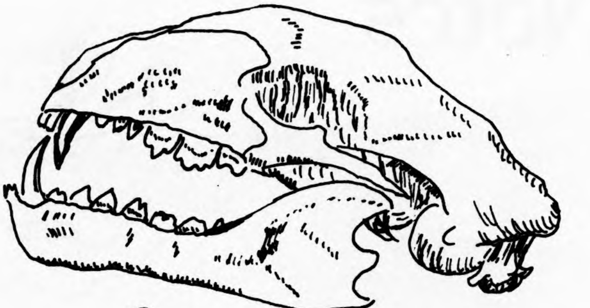
Herbivores are plant eaters and, as one might expect, have large, flat-crowned molars which are used to crush and grind vegetable matter. The incisor teeth are relatively small and are used for clipping plants and grasses. Between the incisors in the front and the molars in back is a wide space. A common herbivore in Connecticut woods is the white-tailed deer (Odocoileus virginianus).

The distinctive feature of the carnivore jaw is the fang-like canine tooth located between the incisors and the premolars. In fact, all of the teeth of carnivores are sharp, specialized so that these flesh eaters can tear apart their food. Typical carnivores found in our area include the red fox (Vulpes fulva), raccoon (Procyonlotor), and weasel (Mustela freneta). (Many animals, including raccoons and foxes, are technically omnivores as their diet includes both plants and animals; however, their teeth are of the carnivore type.)

A rodent skull, if the teeth are present, is unmistakable due to the prominent incisors. These long, curved



Herbivore



Carnivore

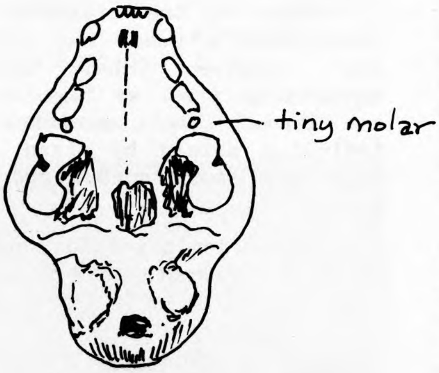
front teeth are used for gnawing. The molars are flat. On some rodents, the molars have a complicated zig-zag crown pattern which may provide positive identification of certain species. As in the herbivores, there is a gap between the incisors and the molars. Some of Connecticut's rodents are the beaver (Castor canadensis), eastern chipmunk (Tamias striatus) gray squirrel (Sciurus caroliniensis) and white-footed mouse Peromyscus leucopus).

Once a skull has been categorized as either herbivore, carnivore, or rodent, it may be possible to place the mammal in its order and family. For example, a jawbone containing more than 40 teeth, particularly if there are more than a dozen incisor teeth altogether, probably belonged to an opossum of the order Marsupialia. The 'possum, our only marsupial, has a total of 50 teeth, which is many more than any other mammal common in this area.

Members of the cat family, Felidae, possess a miniscule tooth, the last molar of the upper jaw. If the skull belongs to a carnivore, it should be examined for the presence of this tiny tooth. Other than wild domestic cats, the bobcat (Lynx canadensis) is a wild cat found in Connecticut, although it is not common. The cougar or mountain lion (Felis concolor) is reported to be reestablishing itself in the East. Considered endangered, this cat is not likely to be observed. Needless to say, the find of a large skull with the tiny tooth present would certainly merit further investigation.

Another animal family with distinctive dentition is the Mustelidae, which includes badgers, skunks, otters, and weasels. The last molar in the upper jaw of these mammals is arranged at right angles to the tooth row.

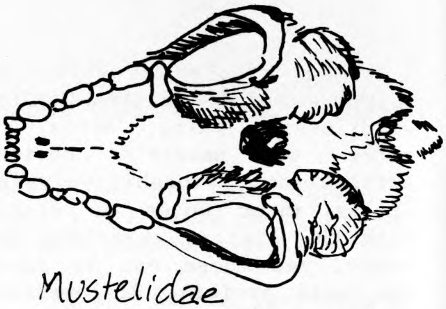
Rabbits, which belong to the order Lagomorpha, have an extra set of tiny peg-like teeth located directly beneath the incisors. No other mammal in North America has an arrangement like this; thus a rabbit skull can be immediately identified. If the teeth are missing on a skull, examine it carefully for an extra set of holes beneath the incisor cavities.



Felidae

Not all of the bones found in the woods belong to mammals. One may come upon a lighweight, fragile skull, possibly accompanied by several small, hollow bones. These, of course, belong to a bird: the hollow bones enable the bird to fly.

Snakes, frogs, and turtles also have interesting skeletons. In the case of the snake, the innumerable ribs and vertebrae would be a much better clue to identification than a detached skull.



Mustelidae

note last molar at angle.

One sure way to find bones in the out-of-doors is to know where an owl roosts. Search the ground nearby for owl pellets, small regurgitated pellets of fur and bones. A careful examination of the pellet will produce an array of tiny bones including skulls. From this evidence, one is able to deduce exactly what an owl has fed upon.

On your next hike in the woods, particularly at this time of year when there is not the distraction of spring wildflowers or autumn colors, hunt for bones. If you are rewarded with a find, try to determine what animal it might have come from. Are there teeth present? Are they worn and old? Is there indication that the animal may have been injured? Signs of a struggle? Much can be deduced from careful observation.

"A Field Guide to the Mammals," Peterson Field Guide Series, Houghton-Mifflin Company, has a section picturing the different mammal skulls. This guide can be helpful for those who wish to identify finds. ■

By Audrey Handelman, Environmental Intern

CFM program helps Connecticut's forest landowners

Don Smith, a service forester in Connecticut's Region II, is doing his part for the Cooperative Forest Management program. The CFM program, established about 40 years ago, is a federally-funded program administered by states. It offers professional advice, technical assistance, and leadership to owners of forested land. State's are then partially reimbursed by the federal government for the time spent by foresters in the CFM program.

Since approximately 90 percent of Connecticut's forest land is owned by private individuals, municipalities, or quasi-public water supply companies, such a program serves the best interests of the State's forest resources. Foresters like Smith offer a variety of services to individual landowners, including management planning, estimating the volume of forest products, tree marking, advice on all aspects of silviculture, marketing assistance, and assistance with federal cost-sharing programs.

Smith's primary responsibility as a service forester is to work with landowners, which usually involves spending a half a day to a day walking with a landowner over his property. "I try to see what's there, to get a feel for the forest area. Then I give general advice or I refer the landowner to a private forester if a more in-depth picture of the resource is needed.

Audrey Handelman photos

Service Forester Don Smith uses a prism to determine forest density as landowner Herbert White of Sherman watches.

There is no charge for the work Smith does with landowners. Regulations regarding cost reimbursement are set federally, but the State is in charge of the general policy guidelines for the program. Under these guidelines, a service forester in Connecticut must limit his assistance to no more than two days per year with a particular landowner, must limit the marking of timber to those cases where it is impractical for the landowner to hire a private consultant, and must not

Smith looks over Herbert White's land to determine its forest characteristics.

perform boundary surveying on private lands. The idea behind these guidelines is to accomplish the most for the greatest number of landowners.

The CFM program is very popular, Smith says. "I could do nothing but help landowners all day every day and keep very busy. We sometimes have a backlog of people waiting for me to come out and look over their land. They may have to wait a while, but eventually I get to everyone." Smith's other responsibilities include involvement in managing State Forest lands and suppresion of forest fires. To allow himself more time to see many different landowners, and also to keep within the guidelines of the program, he often makes referrals to private foresters and consulting firms.

"I've found that most landowners are sincerely concerned with forest resources and want to protect them." Smith works mainly in Fairfield county, and says, "I've seen all income levels, from people who are about as poor as you can be and still own land, to the Rockefellers. And most of them have been very cooperative and interested in what CFM has to offer." Smith usually works with owners of large areas of land but since all taxpayers are entitled to assistance, he will give advice to those who own as little as two or three acres. Normally, in order to make best use of his time, he sends information to owners of small acreage or answers their questions over the phone. Under the CFM program, Smith also works with municipalities which want to set up cord wood programs on city lands.

Some of the most valuable advice Smith gives to landowners concerns how to deal with loggers and timber cutters if they should decide to harvest timber from their property. "People treat their woodlots too casually. It's crazy. If you were selling your car, you wouldn't just let the buyer drive it around for a month and then decide he would pay you for it, if he liked it. But people treat timber that way." It's important to get a written contract before cutting begins, indicating the condition in which the landowner would like the land left. It is usually a good idea, in addition, for the landowner to hold at least 10 percent of the total payment for a job as a "performance bond." That way, if the contract is violated, there will be money available to the landowner to remedy any wrong-doing. Smith can also recommend loggers and suggest possible markets for the wood.

On Herbert White's 90 acres in Sherman, for example, Smith found a large population of marketable black locust trees. "It's unusual to find such a large stand of locusts that size," he commented, noting that Mystic Seaport is always looking for black locust wood to use for beams and pilings; it is a favored wood for use in or near water because of its strength and durability.

Other than the black locust, Smith found no marketable timber stands on White's land. He recommended that White manage his forest land by cutting cord wood and removing dead, damaged, and diseased trees and trees with multiple stems. In ten or fifteen years, he said, stands of other species such as oak and hickory will be of marketable size.

"You want to be careful you don't get loggers who work exclusively by size," Smith cautions. "Some of them say they'll take anything over 18 inches. But that might not be best in terms of forest management, and it might not be best in terms of economics, profit for the landowner. Some species will grow a lot in a few years, and you'll get a lot more out of a tree by waiting five years.

"White doesn't really need to do anything with his land right now unless he wants to. I'll probably send him a follow-up letter, although in this case it isn't essential." In most cases, where there is a lot of work to be done, Smith submits a comprehensive management plan to the landowner.

Another federal project, known as the Forestry Incentives Program (FIP), was authorized by Congress in 1973 to provide direct cost-sharing for tree planting and timber stand improvement by private landowners. Private individuals control the majority of forest lands in the United States but often do not have money to invest in the improvement of their woodlots or in the establishment of new stands. Since it is estimated that the demand for sawtimber, plywood logs, and high quality hardwood logs will exceed the supply within 25 years unless more trees are planted and existing forest land is well managed, this program may become the key to the availability of forest resources in the future.

To be eligible for cost-share assistance under FIP, an individual must own no more than 1000 acres of eligible forest land, must be a private owner (any group or corporation whose stock is not traded publically is considered private), and must have land capable of producing marketable timber crops. In his

To page 18

Sierra Club involves members in issues as well as outings

By Audrey Handelman, Environmental Intern

"Grass roots" became a key phrase in describing many political and environmental movements of the 1960s and 1970s, as activists realized that there was power in numbers and that many individuals, by pulling together, could influence policy-, decision-, and law-makers. When enthusiasm for political and environmental activism abated a bit, however, the "roots" at the base of many "grass roots" organizations withered and died.

The Sierra Club is one environmental organization still going strong today which has depended on its "roots" and the motivation of many individuals working together since its beginning almost 90 years ago.

John Muir, a naturalist who wanted others to share in his love of the earth and nature, founded the Sierra Club in 1892. He felt that if people learned to enjoy and value the wilderness through a variety of activities, they would work harder to preserve it. The club's goal, therefore, is a world in which all life forms are allowed to live and prosper, a world in which human beings respect the rights of all living things. Today, the club is committed to preventing the exhaustion of natural resources and to reducing the impact of increasing population on the environment.

The club's main administrative office, where all membership dues are processed and national publications are produced, is in San Francisco; the main lobbying office is in Washington, D.C. There are 53 chapters of the club in the United States. Each chapter is in turn composed of several smaller groups organized according to geographic location. It is this hierarchical arrangement which allows the citizen participation necessary to make the Sierra Club truly a "grass roots" organization.

"We are probably the most powerful environmental lobbying group in the country," says Holly Schadler, director of the Sierra Club's Connecticut Chapter. The Connecticut Chapter formed ten years ago by breaking off from the New England Chapter, which had in turn broken off from the Atlantic Chapter. Such splits occurred as states became concerned with particular issues which they felt larger chapters were neglecting.

The Connecticut Chapter has about 2,500 members, and its six groups are led by volunteers. Funding comes from membership dues, a portion of which cover the salary of the chapter's director and part of which pay for various activities organized on the group level. "When a member joins, he or she is assigned to a chapter according to where he or she lives," Schadler explains. "We as a chapter are then allocated funds according to how many members there are in our area."

Ginny Paige works as a volunteer one day a week at the Connecticut Chapter's Hartford office at 69 Lafayette Street. She is responsible for all aspects of membership, as well as for miscellaneous duties related to club activities. She explains how the club's concerns are taken up at a "grass roots" level: "We send out questionnaires to all new members, asking what aspects of the club they would be most interested in--conservation issues; club support such as lobbying, publicity, and fund-raising; or outings." Outings, organized on the group level by group leaders, include day-hiking, rock-climbing, canoeing, cross-country skiing, and educational field trips. They are open to the public and are often a means of attracting new members.

"We try to find out what special interests or skills our members might have through the questionnaires," Paige says. "We hope that the group leaders will contact them so that their resources will be available to all members." People may join simply because they enjoy outdoor activities or because they are interested in conservation issues. As with any organization, there are many members who do not participate actively, but support the club with their membership dues. Recently, Paige feels, many have joined because they are dissatisfied with the attitudes of national administrators toward the environment, and they choose to support the Sierra club's stand on many environmental issues.

As the primary mover of what may be Connecticut's chief environmental lobbying group, Schadler says, laughing, "I spend most of my time on the telephone, answering questions about the club or about environmental issues." But she finds time to be active as a lobbyist and organizer.

A meeting called by Schadler illustrated how she and the club operate on environmental issues. Present at this meeting, which concerned the Clean Air Act, were representatives from various environmental groups, including Connecticut Citizens Action

Leslie Bieber photo

Holly Schadler, director of the Sierra Club's Connecticut Chapter, center, joined the Sierra Bear at a rally in front of the State Capitol recently.

Group, the Connecticut Lung Association, and the Connecticut Audubon Society. The group discussed the possibility of forming a loose coalition of groups interested in the Clean Air Act. "It wouldn't have to be a very formal organization," Schadler explained. "The coalition could provide information to smaller groups which may not have the resources to get involved on their own. The coalition could send representatives to talk to congressmen during legislative recesses and could disseminate information on the Act. We just don't want to let the reauthorization slip by . . . groups supporting a strong Clean Air Act must present a united front to combat the opposition threatening the integrity of the Act. The only way we can do that is with groups working together and the efforts of the people we represent."

Courtesy of Sierra Club

The Sierra Club's second annual Wild Foods Dinner drew more than 50 participants. The meal consisted entirely of natural, homegrown, and wild foods.

The group also talked about other environmental, labor, and public health organizations which might wish to join the coalition and identified several issues which the coalition might want to emphasize. The purpose of the meeting--to generate ideas and to exchange information which will eventually filter down to individuals--is further evidence of the Sierra Club's "grass roots" focus.

Schadler herself, as a representative of the club, is deeply involved in fighting for the Clean Air Act. She is the contact in the state for the National Clean Air Coalition. In July, she spent a week in Washington lobbying to keep the "guts" in the Act when it comes up for reauthorization.

The Connecticut Chapter was also instrumental getting Bill No. 325, which became An Act Concerning the Study of Acid Rain, passed by the 1981 General Assembly. The act sets up a 15-person task force to study the effects of acid rain on Connecticut; the task force is made up of representatives from DEP, environmental and agricultural groups, industry, and the General Assembly.

Nationally, the Sierra Club's past accomplishments are impressive. It played a major role in the formation of the National Park Service and the National Forest Service and in establishing Sequoia, Kings Canyon, Redwood, and other national parks, and it is leading efforts to preserve millions of acres of public land in Alaska. But victories, says Schadler, are hard-earned.

"What I'm doing takes patience. It's sometimes fun and often challenging, but much of the time it's just plain frustrating. What we're trying to do with the Clean Air Act now. . .it's clear that opposition to the Act is very strong. The prospect of fighting for a year or a year and a half just to hold our ground and keep an Act that's palatable to us is discouraging. And it's especially difficult now, in a time when the tide is turning against regulations in general. It's going to be a long, hard battle." ■

Management aims for deer herd compatible with habitat

By Maureen Guck, Student Intern, Trinity College

This is the seventh year of the deer management program in Connecticut. One of the main goals of the program is to maintain a healthy and productive deer population at a density compatible with the carrying capacity of the habitat.

Deer population estimates are made through aerial surveys taken in the winter, when there is sufficient snow cover to count deer on the ground. A conservative estimate of the population is gathered from counts taken over one percent of the land. The last such count, in 1978, estimated a wintering population of 22,500 deer. By the summer of 1981, after three summer fawn crops, this figure is estimated to have increased to approximately 40,000 deer.

The most efficient, safe and economical means of reducing the wintering population to a size compatible with the environment is through regulated deer hunting seasons conducted in the fall. The quota of permits to be issued during the seasons is set to allow the maximum number of hunters into areas while still maintaining safety and a quality hunting experience. To allow more individuals the opportunity to hunt, in 1980 the shotgun season was divided into two parts (A and B) allowing twice the number of people to participate during this hunting season.

Biological deer check stations are in operation during the nine-day muzzleloader and 15-day shotgun seasons. Deer taken during these seasons must be brought to a station where data is gathered on their age and health through examination of antlers, body dimensions, and tooth wear and replacement.

Without reduction measures the herd would easily increase well beyond the capacity of the environment to support it. If this happens a large number of deer would become victims of malnutrition and thus become susceptible to disease, parasitic infestations, reduced deer productivity, and increased fawn mortality. This is already happening on a small scale within the 8,000 acres of the Metropolitan District Commission (MDC) property in Barkhamsted, Connecticut. The MDC previously did not allow hunting on their property, letting the deer population grow unchecked. The herd size eventually surpassed the carrying capacity of the land, resulting in extensive

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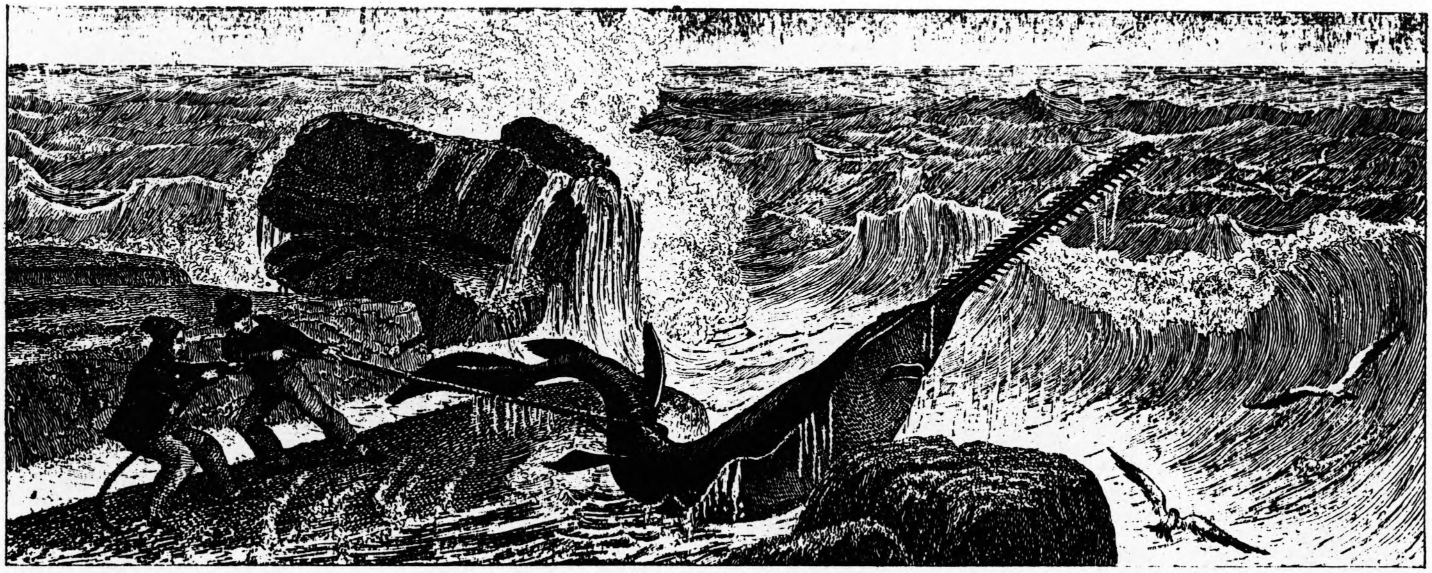
Irene Vandermolen photo



Trophy awards recognize skill and document fishing quality

By Audrey Handelman, Environmental Intern

Each year, DEP's Trophy Fish Awards Program recognizes about 100 anglers with bronze pins and certificates of merit. The program is not a contest; it is intended only to recognize and reward angling skill and to maintain an up-to-date listing of Connecticut record fish.

The program returns also indicate how various bodies of water are producing and provide year-to-year documentation of fishing quality.

To be eligible for the program, the fish must be entered within 30 days of being caught; fish must weigh at least the minimum for each species (see chart below). To enter, the angler must fill out an affidavit, available from DEP's Fisheries Unit in the State Office Building in Hartford and must have the affidavit wit-

Minimum Weight Chart

In order to qualify for an award, the following minimum weights are required:

*Brook trout	2 pounds	*Chain pickerel	5 pounds
Rainbow trout	4 pounds	Pike	10 pounds
Brown trout	5 pounds	Black crappie (Calico bass)	2 pounds
Lake trout	15 pounds	Bluegill	1 pound
*Kokanee	2.5 pounds	Common sunfish	12 ounces
Largemouth bass	6 pounds	White perch	2 pounds
*Smallmouth bass	4 pounds	*Brown bullhead	2 pounds
Walleye	5 pounds	White catfish	4 pounds
Yellow perch	2 pounds	American shad	6 pounds

*Photograph required

Photographs are required for indicated species so DEP's Fisheries Unit staff can be sure that the big brook trout is not, in fact, a small rainbow or brown trout; that the qualifying smallmouth bass is not a small largemouth; that the chain pickerel is not a pike; or that the big brown bullhead is not a small white catfish. The Fisheries Unit asks that anyone entering a fish of a species for which a photograph is required be sure the picture shows the fish clearly.

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PCB's are higher in those eating fish from Housatonic

By Leslie Bieber, Citizen Participation Coordinator

In 1976, after the discovery that sediments and fish from the Housatonic River showed high levels of PCBs, the Commissioner of the Department of Health Services (DOHS) issued a warning against consuming all species of fish taken from Lake Zoar north to the Connecticut - Massachusetts border. As part of a plan to determine the overall health effects of this contamination, the DOHS conducted a study to see whether persons eating fish caught in the Housatonic River had elevated PCB levels or other health problems when compared to those not eating fish.

Two study populations were chosen for this evaluation. Both included only adults from 18 years to over 70 who were not occupationally exposed to PCBs. The first group were persons who eat fish from the Housatonic on a regular basis. Several of these people were recruited from members of the Housatonic Fly Fisherman's Association and their families. The second group were volunteers who did not eat fish from the river. These persons were often State employees. Non-fish-eaters were selected to match the sex and age distribution (within age decades) of the fish eaters.

Each study participant was administered a questionnaire by an interviewer to determine his medical history, any job-related PCB exposure, smoking and drinking habits, and fishing and fish consumption data. In addition, a blood sample was taken for measurement of serum PCB level as well as other body chemicals associated with possible imbalances caused by PCB ingestion. Only one non-fish-eater reported an occupational exposure to PCBs which, on further questioning, was determined not to have been significant. While the quality of the data was good, the analysis was hindered by an important limitation. Because the questionnaire did not ask the type of fish caught or eaten for a specific location along the river, it was not possible to make a correlation between PCB levels and each type of fish eaten from a given location.

The overall objectives of the analyses were: 1) to compare non-fish-eaters and fish-eaters in regard to their PCB levels, other blood chemistry measurements, and medical histories; and 2) to determine any relationships of type, amount, and location of catch of the fish eaten to PCB levels. In order to achieve the first objective, tests were run on PCB and blood measurements and medical data. In addition, a statistical test was used to compare PCB levels in pair-matched non-fish-eaters and fish-eaters. The second analysis compared PCB levels to the amounts of fish eaten by type of fish and locations fished. Correlations of PCBs with lifetime consumption of fish and mean PCB levels by grouped amounts of fish eaten were also made. Larger amounts of PCBs were found in the sediments from the upper part of the river than in those from the lower; therefore, the results from the upper and lower sections of the river were compared. An upper river location was defined as the Housatonic River at Falls Village and Cornwall, Lake Lillinonah, and Lake Zoar. The lower river included Lake Housatonic and the Housatonic River, south.

The results of the testing can be summarized as follows:

1) Individuals who eat the fish from the Housatonic River have significantly (statistically) higher PCB levels than those not eating the fish. However, the difference may not be very important clinically. (It is interesting to note that in a 1980 Michigan Study, the non-fish-eaters had a higher average PCB serum level than the fish-eating group in Connecticut. Between-laboratory variation may account for this difference.)

2) PCB levels in males and females are not that different. Although the males in the study had a few persons with higher PCB levels than the females, the difference was not that great considering the fact that the females had eaten less fish.

3) Those eating the fish have a higher incidence of symptoms than those who do not, but the increased incidences were not associated with a higher level of PCBs in cases with the symptoms.

4. No dose-response relationship of PCB with amount of fish eaten is apparent.

5. Persons eating fish from the upper locations may have higher PCB levels than those eating fish from the lower locations along the Housatonic.

6. No particular type of fish eaten is associated with an increased level of PCB.

The definitiveness of conclusions (5) and (6) is constrained by the limitation of questionnaire data as previously noted.

The study does suggest a correlation between eating fish from the contaminated river and

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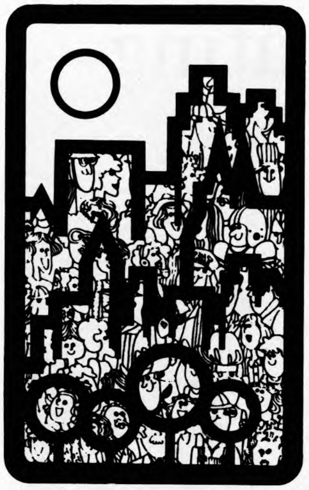

For Your Information

By Leslie Bieber,
Citizens' Participation Coordinator

Recycling workshops offer tips for success

The Solid Waste Management Unit of the Department of Environmental Protection, in conjunction with the Energy Division of the Office of Policy and Management, recently conducted a series of workshops on the source separation and recycling of municipal solid waste. These workshops, which were attended by almost 200 municipal officials and interested citizens, were designed specifically for those people actively involved with local recycling programs. The League of Women Voters of Connecticut, the Solid Waste Management Advisory Committee, and the Connecticut Environmental Caucus co-sponsored the event.

Each of the four sessions was broken down into three discussion groups covering the subjects of organization and administration, collection and equipment, and markets and marketing. Local officials in charge of successful recycling programs, waste haulers, market representatives, and other knowledgeable people served as discussion group leaders. Not only did this format allow for exchange of ideas between the leaders and the participants; it also stimulated communication among various town officials who had common problems and/or goals. Many new inter-municipal contacts were established in the process.

While recommendations made by the group leaders varied according to a municipality's population, topography, geographic location, and economic condition, most suggestions for running a successful program were consistent. The following are the major points made during the course of the workshop:

I Organization and Administration

1) The program must have commitment from local governing body--it should have the full support of the municipal officials to ensure credibility and financial backing.

2) It cannot be viewed as strictly profit-making venture--while revenues may be received from the sale of materials, recycling is ultimately a cost-avoidance program.

3) Continuous public education is a must. Don't stop publicizing the program after start-up. Flyers, newspapers, posters all provide the community with necessary information. Local schools can be an important public relations tool.

4) One person, preferably paid, should administer the program, for continuity and dependability. Volunteer help, while it costs nothing, is not always there when needed.

5) Program should be easy for residents to follow--there should be simple preparation and collection requirements in order to encourage participation.

6) If collection method is drop-off, it should be as convenient as possible for residents--bins should be placed in heavily traveled areas such as shopping centers or at landfills or transfer stations, if residents dispose of their own trash.

7) Other organizations should be involved in program. Glastonbury, for example, had Boy Scouts prepare and distribute maps of recycling locations at the town landfill.

8) Traffic flows at landfill should be controlled if recycling center is there, not only for safety but also to determine extent of dumping of recyclables.

9) Program can either be mandatory or voluntary, depending on municipality--no one way is the best. Base program on individual character of town.

II Collection and Equipment

1) Consistent, reliable pickup is a must. Residents become discouraged if collections are skipped. For large cities, collection schedule the same as trash pick-up is suggested. For smaller communities, a set once-or-twice-a-month plan is recommended. Leave notes if vehicle fills to let residents know truck will be back.

2) Use existing equipment and manpower wherever possible. Retrofit trucks with racks or trailers or use extra vehicles for separation of materials. Have crews pick up during otherwise slow hours.

3) Provide incentives for employees--pay bonuses for picking up recyclables, let crew leave early if route is completed properly. Publicity can show and/or name employees working on program.

4) Make collection specifications clear to residents--if materials are prepared improperly and are left by crews, stickers or flyers explaining rejection should be attached.

5) Separate collection of bulky items and special/com-

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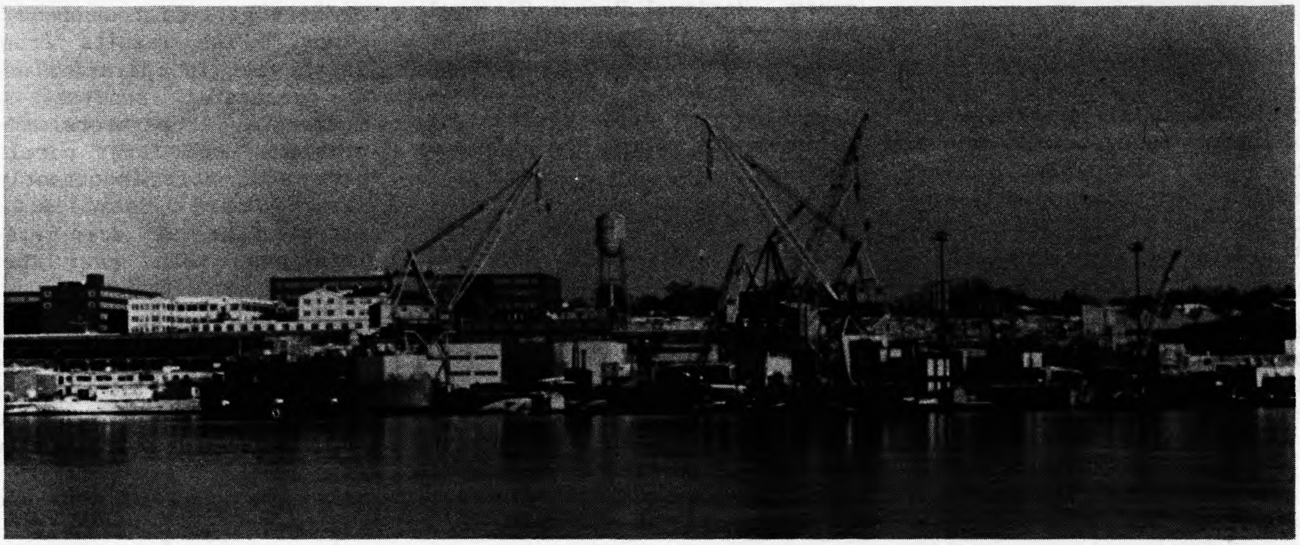
coastal
area
management
71 capitol avenue hartford conn 06115

CAM NEWS

Developed shorefront also needs management

Developed shorefront, areas such as ports and harbors, needs active management just as fragile natural areas do. Many city harbors need revitalization, and water quality in such areas remains a critical problem. Coastal management policies guide development to prevent further degradation of the coast and to give priority to activities which depend upon waterside locations, activities such as marinas, shipping terminals, and recreation areas.



Housatonic fish

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elevated PCB levels. There do not appear to be any acute health effects related to this practice; the long term effects, however, are unknown at this time. Because the fish from the Housatonic River exceed the FDA tolerance level and because long term consequences of ingesting these fish cannot be predicted, the DOHS continues to recommend that fishermen not eat fish caught in these waters. If you have any questions on this study or would like more information on the health effects of PCB-ingestion, contact George Curry at the Department of Health Services, Toxic Hazards Section, 79 Elm Street, Hartford, CT 06115 (566-8166). ■

Service forestry

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role as service forester, Smith also helps landowners find out how to take advantage of this program, which can supply up to 75 percent of the cost of tree planting and timber stand improvement. FIP is administered by county Agricultural Stabilization and Conservation Service (ASCS) offices.

"I don't see a lot of improvement all that quickly in terms of forest management generally," Smith says. "There are still a lot of things more important to people than their forests. But I can see gains, little by little. Slowly, people's attitudes are changing." ■

Recycling

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mercial/industrial materials is recommended--bulky metals can be picked up seasonally or as needed. New London collects waste newsprint directly from local newspaper.

6) An anti-scavenging ordinance is needed. Initial enforcement should be strict and well publicized to discourage potential scavengers.

7) Don't overlook collecting materials such as leaves, stumps, brush, and grass clippings; in some towns, residents separate these items and later collect compost from municipal site.

III Markets and Marketing

1) Talk to several markets before entering contractual agreement -- it pays to shop around.

2) Some markets may offer equipment, transportation, and educational materials in addition to or in lieu of actual revenues.

3) Don't collect materials for which there are no markets--if they can't be sold, they'll have to be disposed of anyway.

4) The better prepared the product, the higher the revenue will be. Take into account that staff is needed to properly clean and sort material. Will added revenues affect salaries? Also, will it reduce volume collected?

5) Run recycling program like a business. Both sides must uphold their contracts. Municipality must be serious and farsighted about operation.

6) Whenever possible, supervise or limit access to collection bins. This prevents the possibility of vandalism or scavenging.

7) Regionalized operations guarantee greater tonnages/more money. Regional Refuse Disposal District I is made up of four small municipalities, whose pooled resources and materials have led to good contractual arrangements with the various markets.

8) Contract terms and conditions should be clarified as soon as possible -- money vs. equipment, who hauls, etc.

9) Have realistic estimates of tonnages before contacting markets -- overestimating participation could seriously damage contract arrangements.

10) Explore the possibilities for creating markets--making insulation out of paper goods, for example. Investigate all legal and technical requirements. ■

Deer Management

From page 13

damage to seedling regeneration and the death of some deer from starvation and the effects of malnutrition. The MDC, with the DEP's Wildlife Unit, now conducts controlled reduction hunts to keep the deer population in check.

Individuals can also experience large populations of deer living on their property. From 1974-1979 the Wildlife Unit administered a crop protection system to allow landowners who were experiencing deer damage to shoot deer by permits on their land. Unfortunately, the system was abused and instead of fulfilling its original intent became an extended trophy hunting season. In 1980, a landowner season was opened from November 1 to December 31 allowing landowners and their lineal descendants to obtain free permits to hunt deer on their properties according to acreage requirements under deed. The highest hunter success rate of 1980 was attained during this season with 14.9 percent of the landowners taking deer. Also in 1980, the legislature established the deer damage permit system limited to commercial growers earning $500 or more gross income from their crops. The results from the first year in operation suggest a successful program. The commercial operators having problems used fewer permits to take and, more importantly, to report more deer on less acreage but at more specific locations than ever before.

The deer management program in Connecticut is relatively new and, as a public service agency, the Wildlife Unit is constantly trying to implement effective management practices to best serve the needs of deer and the public. ■

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Scaup: fewer...or farther from shore? Jan 81 p 17-18

SEEDLINGS
Seedling program placing millions of trees Dec 80 p 7

SEWAGE DISPOSAL
Handling septage Oct 80 p 14+

SPHAGNUM MOSS
Sphagnum moss Dec 80 p 24

STATE/EPA AGREEMENT
EPA agreement pinpoints environmental priorities Jan 81 p8-9+

THAMES SCIENCE CENTER
At Thames Science Center, emphasis is educational--courses, exhibits, "Science Saturdays" Feb 81 p 12-13

TREES
Take note of the flowers that bloom on the trees on the street where you live Je 81 p 18-19+

TURKEYS
Wild turkeys keep multiplying... gobbler season slated for spring Nov 80 p 6-7

WATER CONSERVATION
Water supplies...wasteful is "all wet" Apr 81 p 4-9

WATER QUALITY
Controlling agricultural pollution Nov 80 p 20

French River/Oxoboxo River impoundment studies Dec 80 p 19

The hydrologic cycle, leachate production, and monitoring wells Je 81 p 17

Monitoring and modeling mean understanding our rivers and wisely managing their futures Mar 81 p 6-9

In spring an environmentalist's fancy turns to non-point source water pollution Mar 81 p 21

Thames River basin road salt study May 81 p 15

Agricultural pollution studied in Little River Watershed Feb 81 p 21

208 continuing its storm water runoff studies Jan 81 p 21

208 examines silviculture non-point source pollution Sept 80 p 14

Waste unit watches waters below landfills Je 81 p 16-17

WATERFOWL
Mid-winter inventory of waterfowl-1981 Jan 81 p 22

WESTPORT NATURE CENTER
Center guests help foster understanding of natural world Jan 81 p 3-5

WHALES
Whale watching season Mar 81 p 5

WILDLIFE RESOURCES
Should we trap? Feb 81 p 14-17+

WOODSY OWL/SMOKEY BEAR POSTER CONTEST
Governor cites poster winner Jl/Aug 81 p 2

YOUTH CONSERVATION CORPS
Apply now for YCC Mar 81 p 2 ■

Trophy awards

From page 14

nessed and notarized and return it to the Fisheries Unit.

To be eligible, the fish must be caught legally from Connecticut waters and be played by one person; fish from private waters are eligible only if they are taken during the open season for public waters. Fish must be weighed on a scale certified by Dept. of Consumer Protection.

When a record is broken, Fisheries records are updated. Recent record-breakers, in 1980, were Conrad Schleicher of New Britain who caught a 4 pound 7 ounce brook trout in the Salmon River at Haddam; Joseph Mankauskas, Jr., of Ansonia, who caught a 7 pound, 12 ounce smallmouth bass at Shenipsit Lake in Tolland; and Joseph Nett, of Prospect, who caught a 29 pound northern pike at Lake Lillinonah. ■

Left with some prickly gift problems?

Give DEP's Citizens' Bulletin! Perfect for persons interested in Connecticut's outdoors. Just the thing for anyone concerned about the environment. Only $3 a year (for 11 issues). Or save by ordering two years for $5. Return the form below with your check or money order to Editor, DEP Citizens' Bulletin, Rm. 112, State Office Building, Hartford, CT 06115.

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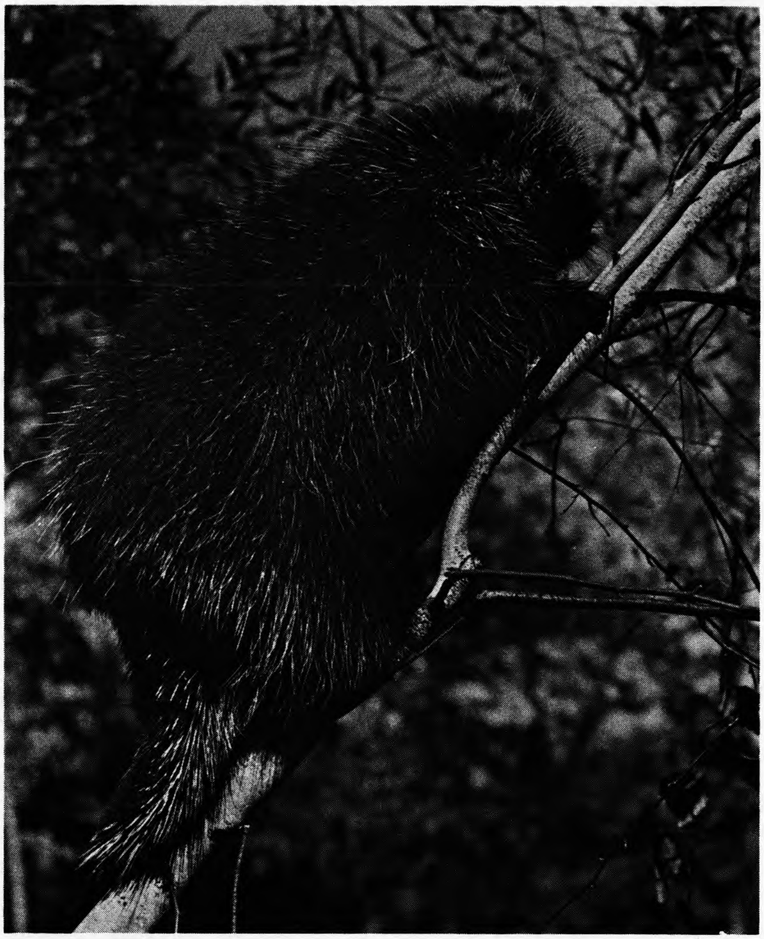


Porcupine–Leonard Lee Rue III

Public Hearings

December 17, 1981; 12:30 p.m. & 6:30 p.m., DPUC Hearing Room, One Central Park Plaza, New Britain

The Department of Environmental Protection will hold hearings on its proposed Hazardous Waste Facility Siting Regulations on December 17 at 12:30 p.m. and 6:30 p.m. The afternoon and evening sessions on DEP's proposed regulations will be followed immediately by hearings on the proposed regulations of the Connecticut Siting Council which was established by PA 81-369 to handle both hazardous waste and power facilities siting.

Both sets of hearings will be held in the Department of Public Utilities Control Hearing Room at One Central Park Plaza in New Britain. Both sets of proposed regulations are now available for review by the public.

Further information and copies of the DEP's draft Hazardous Waste Facility Siting Regulations are available from Thomas Turick, Hazardous Materials Management Unit, 122 Washington Street, Rm. 9, Hartford, CT 06115 (566-5712). Copies of the Hazardous Waste Siting Council's draft regulations are available from Connecticut Siting Council, One Central Park Plaza, New Britain, CT 06051 (827-2604).

Inland Wetlands & Watercourses Jurisdiction/Town of Cromwell

The Commissioner of Environmental Protection has determined that the Inland Wetlands and Watercourses Agency for the Town of Cromwell is not exercising regulatory authority as required by Section 22a-42 of the Connecticut General Statutes by virtue of a failure to schedule and hold regular and properly constituted meetings to receive and consider applications for permits or licenses to conduct regulated activities in accordance with the requirements of the Inland Wetland Act C.G.S. 22a-36 through 22a-45, inclusive.

Therefore, effective immediately the Commissioner of Environmental Protection shall administer the provisions of the Inland Wetland and Watercourses Act and regulate affected activities in the Town of Cromwell. Order entered, 11/2/81.

Permits Denied

10/23/81: Jima Construction Co., Milford
Application to place 96 cubic yards of fill within the bounds of State designated tidal wetlands in Milford to build a single family dwelling was denied.

Permits Issued

Water Resources

Dams

10/20/81: Carl Maynard, Lyme
To repair a dam on Ed Bill's Pond in Lyme. Conditions.

Encroachments

10/30/81: Glen River Associates, Westport
To fill, grade, outlet storm drainage, and construct utilities riverward of established stream channel encroachment lines for the Norwalk River in Wilton for a proposed condominium development west of River Road and north of Horseshoe Road. Conditions.

10/30/81: Connecticut Natural Gas Corp., Hartford
To construct a steel gas line riverward of established stream channel encroachment lines for Trout Brook in West Hartford on the property of the American School for the Deaf. Conditions.

10/30/81: Hockanum River Linear Park Assn., Manchester
To construct 5 foot bridges over tributaries to the Hockanum River and riverward of established stream channel encroachment lines for the Hockanum River in Manchester. Conditions.

11/2/81: Warren E. Howland, Manchester
To construct a storm drainage outfall riverward of established stream channel encroachment lines for the Hockanum River in Manchester south of North Main St., north of the Penn. Central Railroad.

11/12/81: Emil Downey and James Hudson, Wethersfield
To construct a 4 story, 150,000 sq. ft. commercial building known as Putnam Park West along with parking for 600 cars within the flood plain encroachment area of the Connecticut River in Wethersfield. Conditions.

Structures & Dredging

10/22/81: Eric A. Rautenberg, Suffield
To consturct a pile and timber pier, ramp, and floating dock adjacent to property owned by the Great Hammock Beach Assn. Inc., and extending into the Back River not more than 25 feet. Conditions.

10/23/81: Jeff A. Northrop, Westport
To construct a foot bridge from Rocky Hummock Island in Sherwood Mill Pond in Westport. Conditions.

11/2/81: Essex Island Marina, Inc., Groton
To dredge an area 300' x 160' to a depth of 6' below mean high water and to construct and maintain a 40' floating dock extension with a 40' finger pier and five - 50' finger piers at Essex Island, North Cove, Essex. Conditions.

11/12/81: East Norwalk Boating and Yacht Club, East Norwalk
To rearrange floating docks and pilings in the North Anchorage Basin off Seaview Avenue at East Norwalk. Conditions.

Water Compliance

8/31/81: Multi-Circuits, Inc., Manchester
To discharge 272,160 gallons per day of treated wastewaters from printed circuit metal finishing operations and alkaline stripping wastewaters to the Town of Manchester Sanitary Sewerage System. Conditions.

8/31/81: Klock, Division of Gulf & Western Industries, Inc., Manchester
To discharge 400 gallons per day of non-destructive testing wastewater to the Town of Manchester Sewerage System. Conditions.

8/31/81: City of Waterbury, Western Hills Municipal Golf Course
To discharge 2600 gallons per day of sanitary sewage to the Naugatuck River Watershed. Conditions.

9/18/81: Moser Farms Dairy and Valley Farms, Rockville
To discharge 1,080 gallons per day of washwater from a fruit juice bottling plant to the groundwaters of the Hop River Watershed in Coventry. Conditions.

9/18/81: Connecticut Water Company, Clinton
To discharge 33,340 gallons per day of treated backwash wastewater and clean water to Kelseytown Reservoir in the Menunketesuck River watershed. Conditions.

9/18/81: Projects, Incorporated, Glastonbury
To discharge 200 gallons per day of settled vibratory debarring wastewater to the Town of Glastonbury Sanitary Sewerage System. Conditions.

9/23/81: City of Danbury
To discharge an Average Daily Flow of 12,500,000 gallons per day of treated wastewaters to East Swamp Brook. Conditions.

9/28/81: Peterson Steels, Inc., Windsor
To discharge 2,880 gallons per day of pretreated steel pickling wastewaters to the Metropolitan District Commission Sewerage System in the Town of Windsor. Conditions.

9/28/81: Westvaco Corporation, Container Division, Meriden
To discharge 3,000 gallons per day of boiler blowdown, water softener backwash and treated process wastewaters to the City of Meriden Sewerage System. Conditions.

10/5/81: Microtech, Inc., Cheshire
To discharge 10,500 gallons per day of treated metal finishing wastewaters to the groundwaters of the Town of Cheshire. Conditions.

10/5/81: Hawie Manufacturing Company, Bridgeport
To discharge 4,800 gallons per day average, 12,000 gallons per day maximum, of settled tumbling and cleaning wastewater and neutralized nickel plating rinsewater to the City of Bridgeport Sewerage System. Conditions.

10/5/81: The Holgrath Corporation, Cheshire
To discharge 6,500 gallons per day of pretreated metal cleaning wastewaters to the Town of Cheshire Sewerage System. Conditions.

10/8/81: The Donwell Company, Manchester
To discharge 2,350 gallons per day of metal cleaning and teflon coating wastewater to the Town of Manchester Sewerage System. Conditions.

10/8/81: Kimberly Clark Corporation, Neenah, Wisconsin
To discharge leachate from sludge disposal area to the groundwaters in the watershed of the Housatonic River in New Milford. Conditions. ■

Trailside Botanizing

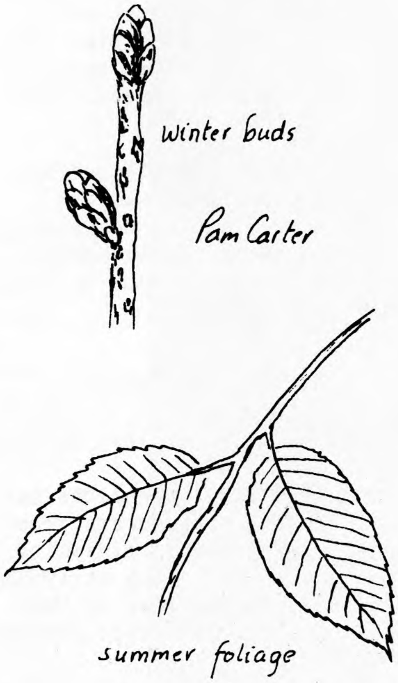
by G. Winston Carter

American hornbeam
Carpinus caroliniana

The bark of this tree is most unusual. It has prominent ridges and is somewhat twisted in appearance, which is the reason that it is sometimes called "musclewood." The bark of the American hornbeam is rather smooth and a grayish blue, hence the common name "blue beech."

It is usually found growing along waterways but may grow on hillsides if enough water is present in the soil. This preference for areas near brooks and streams has earned it the name "water beech."

American hornbeam is sometimes called "ironwood" also, and this has lead to considerable confusion because another tree, the hop hornbeam (Ostrya virginiana), is also called ironwood. This is where the scientific name becomes more important for correct identification. A quick way to distinguish these two species is to examine the winter buds with a hand lens. The scales on the bud of the American hornbeam have no evident striations while the bud scales of the hop hornbeam are marked by tiny longitudinal lines. This illustrates the value of the winter buds in the identification of broad-leaved trees and shrubs. This feature of the plant is observable during most of the year, with the exception of the late spring and early summer months.



The pioneers found many uses for the wood of this tree, which is hard and tough. It was an excellent fuel, and because it did not easily crack or split it was ideal for bowls, dishes, and tool handles. The charcoal made from this tree was once used as one of the ingredients in the manufacture of gunpowder.

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